Semi-annual Environmental Monitoring Report

Project Number: **3524-GEO**

Reporting time period: **January -- June 2020**

Georgia:

Rehabilitation of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50 Km)

Financed by the Asian Development Bank

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For:	Roads Department of the Ministry of Regional Development and Infrastructure of Georgia
Endorsed by:	Mr. Levan Kupatashvili, Deputy Chairman of Roads Department

July 2020

ACRONYMS &ABBREVIATIONS

ADB	Asian Development Bank
SEMP	Specific Environmental Management Plan
RD	Roads Department
DNP	Defects Notification Period
EA	Executing agency
EMP	Environmental Management Plan
EMS	Environmental Management System
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
IEE	Initial Environmental Examination
km	Kilometer
Ministry	Ministry of National Development and Infrastructure
PCU	Project Coordination Unit
PIU	Project Implementation Unit
PMU	Project Management Unit
SSEMP	Site Specific Environmental Management Plan
TOR	Terms of Reference

Table of Contents

Annexes:

1 INTRODUCTION

1.1 Preamble

1. This report represents the Semi-annual Environmental Monitoring Review of Dzirula – Kharagauli – Moliti – Pona – Chumateleti Secondary Road Section (50 Km) Rehabilitation Project.

2. This report is the fifth Semi-annual EMR for the project.

1.2 Headline Information

3. Project design review and construction activities have been commenced in September 18, 2018 (BSG LOT1). There is protected area near the project related road section. The shortest distance between Borjomi-Kharagauli National Park (BKNP) and the existing project road is approximately1.3 km. BKNP is separated from the existing project by a river gorge, which prevent the transposition of flora and fauna. Therefore, the project will have no direct impacts on the biodiversity of the BKNP. However, construction contractor should select appropriate access roads to avoid disturbance of the protected area and provide site staff with special training to prevent poaching.

4. Second Contractor "AKKORD ICIC" (Lot 2) started mobilization and set up office at Chumateleti and their activity started on 31st May 2019.

5. Some non-compliances have been identified during the reporting time period. Appropriate corrective action plan has been elaborated and implemented. Recently, non-compliances were detected during last HSE inspection 04.06.2020, they were recorded and photos taken.

6. It is envisioned, that the road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and will act as alternate route to parallel segments along E-60. Also, positive impact of the project is local population's involvement in the road construction process.

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

7. The project road is a 50.244 km west to east secondary road, starting from E-60 in Dzirula and ending at E-60 junction at Chumateleti. Most of the project road is within Imereti Region with a few kilometers within Shida Kartli Region, through a gorge with mountain ranges with on both the northern and southern part. It is envisioned that this road, when improved, will enhance connectivity to a number of towns and villages at the foothills of the mountain ranges and can act as alternate route to parallel segments along E-60.

8. The details of the proposed road project are:

- Rehabilitate and pavement of the project road from Dzirula to Chumateleti according to Georgian National Standard for Public Motor Roads (SSTGzebi2009), Geometrical and Structural Requirements with 40 km/h design speed. The pavement within Kharagauli town may remain as is since this is still in fair to good pavement condition.

- Replacement or repairing of 19 bridges and 149 culverts.
- Construction of side drains and other drainage structures.
- Provision of retaining walls and river protection measures, where necessary.
- Provision of adequate road signing and marking.
- Provision of safety barriers.

9. For implementation purposes the project was divided into 2 separate sections (lots) of about 25 km each. First section (lot) (Construction Contractor: Black Sea Group) covers the eastern ~ 25 km and second section (Construction Contractor: Akkord ICIC) covers the above road from Moliti(km 24+620) to Chumateleti (km 50+244). The details of the proposed road section are:

- Rehabilitation and pavement of the project road from Moliti to Chumateleti according to Georgian National Standard for Public Motor Roads (SST Gzebi 2009), Geometrical and Structural Requirements with a design speed of 40 km/h.
- Replacement of 11 existing bridges, and construction of 2 new bridges
- Construction of 108 pipe culverts and 6 box culverts.
- Construction of side drains and other drainage structures.
- Provision of retaining walls and river protection measures, where necessary.
- Provision of adequate road signing and marking.
- Provision of safety barriers.

10. AKKORD ICIC has been selected as the Construction Contractor for LOT 2 (Km 24+620 - Km 50+244), agreement has been concluded 04.12.2018. Mobilization is ongoing (started in June 2019), construction activities are commenced but far behind planned schedule.

11. The road is to be designed according to Georgian geometric design standard, and accordingly, it shall be sufficient to carry the traffic loading efficiently and with the vehicles from the opposite directions can pass safely. The design elements for the cross section of the two-lane road are as follows:

- Number of lanes: 2
- Lane width: 3.00 m
- Carriageway width: 6.00 m
- Width of shoulder: 1.00 m (of which 0.50 m is paved)
- Increase of shoulder on embankment 0.50 m
- Total road width: 9.00 m

12. The preliminary road design was carried out considering following design philosophy.

- The standards to be applied will follow the Georgian geometric design standard for the selected design speed of 40 km/h, with some flexibility in application when the strict application of the standards would result in an excessively costly technical solution.
- In general the design follows the existing alignment wherever possible and considers the existing structures. Where the existing alignment does not correspond to the proposed parameters, certain improvements depending on topography, presence of built-up areas and structures are considering.
- The vertical alignment has been maintained in general, with improvements to the sight distances, where the existing topography allow for improvements. To accommodate new pavement layers, the road elevations have increased accordingly where possible.
- The design will result in a cost effective construction, considering the low traffic volumes on

the road and the economic viability of the design.

The map of the project road is given in the **Figure 1** below.

Fig. 1: Map of Project Road

Figure 1: Location Map of the Project Road

13. The project is classified as category B for the environment under ADB's Safeguard Policy Statement (2009). Project implementation periods: 2018-2020.

14. The current Bi-annual Environmental Monitoring Report covers the period from January 2020 to June 2020.

2.2 Project Contracts and Management

15. Project Management Consultancy Services (PMCS) Contract was awarded to JV of Pyunghwa Engineering Consultants Ltd, Yoshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd for three phases of the project:

a. Phase 1–Design review, to be completed in a period of two months.
b. Phase 2–Construction Supervision and Contract Administration. The period is for 33 months.
c. Phase 3–Defects Notification Period, two years.

15. The TOR for the Consultancy Contract contains the following tasks for the Environmental Specialists:

- Ensure that the provisions of the approved Environmental Management Plan are reflected in the Contractor's contract site environmental management plan (SEMP) prior to its acceptance by the Engineer, the Employer and ADB, and there after ensure that the Contractor complies in every respect with the provisions of the SEMP;
- Develop an environmental auditing protocol for the construction period, regularly supervise the environmental monitoring, and submit periodic reports based on the monitoring data and laboratory analysis reports. These reports will be included as an annex to the Consultant's Monthly Report;
- Develop a program for hands-on training of Contractor's staff in implementing the SEMP. Conduct Post-Construction Environmental Audit and prepare post-construction environmental audit report with filled environmental audit checklist.

16. All mitigation measures during construction are implemented respectively by the contractor companies: Black Sea Group LTD and AKKORD ICIC. Each contractor company have environmental and safety officers responsible for HSE issues during construction process. Construction companies are monitored by the supervision consultant (PYUNGHWA) environmental specialist – Shalva Bosikashvili and Environmental Specialist of RD ADB Ms. Luiza Bubashvili. Environmental Specialists of SC and RD conducted routine observations and surveys of project sites.

17. The Contractor, prior to the onset of the construction, is obliged to conduct a number of studies and develop environmental plans, including "Site Environment Management Plan" (SEMP). Such plans can be further subdivided into Topic Specific or Site Specific EMP's. The number of such plans will depend upon the type of project, complexity and sensitivity of the receiving environment.

18. Topic Specific EMPs are developed on a topic by topic basis. For example:

- Waste Management Plan;
- Traffic Management Plan;
- Protected Species Management Plan;
- Water Management Plan and Etc.

19. These plans are detailed and set out how the project will address potential issues identified in the impact assessment process and ensure that specific mitigation and monitoring measures are fully implemented. A topic specific environmental management plan will cover the entire project.

20. The names and contact details of environmental staff involved in the environmental management are presented in the **Table 1** below:

Table 1: Description of staff involved in environmental management

Organization	Position	Name	Nationality	Tenure
Construction Contractor: BSG	Environmental Specialist	Ketevan Nadirashvili 577 992959 Ketevan_Nadirashvili@BCGcom.ge	Georgian	16months
Supervision Consultant: Pyunghwa Engineering Consultants Ltd, Yoshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd	National Environmental Specialist	Shalva Bosikashvili sbosikashvili@yahoo.com 595 116041 Cell Phone	Georgian	16months
ADB/RM	Head Office, Environmental Specialist, Portfolio, Results, Safeguards and Gender Unit (PSG), CWRD. ADB/RETA International-Regional Environmental Safeguards Consultant Associate Safeguards Officer Georgia Resident Mission Asian Development Bank	Nurlan Djenchuraev ndjenchuraev@adb.org Keti Dgebuadze Tel: +995 322 250619 Mob: +995 577 232937 E-mail: ketdgeb@yahoo.com kdgebuadze.consultant@adb.org Nino Nadashvili +995 595 070442 nnadashvili@adb.org	 Georgian Georgian	
Roads Department	Environmental Safeguard	Luiza Bubashvili Cell:+995595219141	Georgian	

PIU	Consultant under ADB & EIB financed Projects	Web: www.georoad.ge likabubashvili@yahoo.com		

21. Construction Contractor for first lot (km 0+000 to km 24+620) is “Black Sea Group” LTD, for the second lot is “AKKORD ICIC” (km 24+620 to km 50+244).

2.3 Project Activities during the Current Reporting Period

22. Contract for the consultant’s services signed on 01.08.2018, construction activities have been commenced on 18.09.2018 for Lot 1.

23. Construction activities are ongoing, camp sites in Kharagauli and Sagandzile established, cutting trees, retaining walls, precast of concrete blocks production and installation and pavement works are in progress.

24. Mobilization for the second lot (Lot 2) construction was completed except operation of batching plant and construction activities are ongoing, construction contractor AKKORD ICIC established camp in Chumateleti area.

25. Site inspections for construction works have been carried out since very beginning of the project. Progress of the works is given in the Table 2 below.

Table 2: PROGRESS OF THE WORK, LOT 1 (BSG)

Progress of Work (A)

No.	Description	Weight Rate (%)	Monthly Progress (%)		
			Plan	Actual	Comparison
1	General	1.52	0.09	0.01	
2	Setting out & Site Clearance	7.17	0.00	0.25	
3	Earthworks	4.52	0.53	0.16	
4	Culverts and Drainage Works	20.75	1.60	0.23	
5	Pavements	18.98	4.67	1.41	
6	Retaining Structure	35.29	0.00	1.00	
7	Junctions and Private Entrances	0.85	0.30	0.00	
8	Road Furniture & Road Markings	5.48	1.16	0.00	
9	Bridge Construction	2.59	0.00	0.12	
10	Rehabilitation of Existing Bridges	0.81	0.00	0.00	
11	Miscellaneous	2.03	0.00	0.01	
12	Material on Site	0	0.00	0.00	
13	Variation Order			0.73	
Total		**100.00%**	**7.82%**	**3.19%**	**-4.63%**

Progress of Works (B)

#	Work Items	Unit	Contract	Achieved Quantities	
			Quantities	This Month	Cumulative
	Earthworks				
	Stripping of topsoil and stockpile for reuse	M3	3,820		
	Excavation of unsuitable and surplus material	M3	58,203		
	Excavation of acceptable and surplus in rock	M3	34,340		
	Excavation of unsuitable and surplus in rock	M3	32,477		
	Excavation of roadbed (clay-loam soils)	M3	18,162		
	Milling of existing asphalt and storage for re-use	M3	3,872		
	Stockpile topsoil and spread on embankment slopes	M3	3,872		
	Pavement				
	Capping Layer T=200 mm	M3	18,762		
	Granular crushed stone base T=200 mm	M3	37,506	9,400	9,400
	Asphalt base T=180 mm	M2	2,110		
	Asphalt binder T=80 mm	M2	2,085		
	Asphalt binder T=100 mm	M2	176,390	44,098	44,098
	Wearing Course nominal T=40mm	M2	177,478		
	Culverts and Drainage Works				
	Pipe culvert works (DN1,000 mm)	M	922		
	Pipe culvert works (DN1,500 mm)	M	358		
	Cast in-situ box culvert C25/30	M3	801		
	Sand & gravel for backfilling of culvert & drainage structure	M3	93,843		
	Precast open side ditch coupled with curbstones L=6,670	M3	880		
	Precast r/c drainage channel TD section	M3	1,944		

	drawings CST-04, CST-05, CST -06				
	Road furniture, Accessories, Signs and Markings				
	Road marking (Type 1-1, 1-5, 1-6, 1-7)	M	71,179		
	Road Signs	Each	1,247		
	Safety metal barrier	M	18,461		
	Road side marker posts	Each	3,060		
	Bus passenger shelter	Each	9		
	Bridges Construction				
	Bridge No. 1	GEL	257,869.46		
	Bridge No. 2	GEL	245,003.96		
	Bridge No. 3	GEL	315,896.89		
	Bridge No. 4	GEL	268,935.20		
	Bridge No. 5	GEL	50,201.32		
	Bridge No. 6	GEL	6,668.93		
	Bridge No. 7	GEL	31,884.32		
	Bridge No. 8	GEL	220,771.83		
	Bridge No. 9	GEL	30,516.89		
	Retaining Structures				
601.1	Excavation in of clay-loam soils	M3	124,008	9141.43	25874.12
601.2	Excavation in rock	M3	13,733	621.67	3424.37
602.0	Backfill behind of retaining structures	M3	96,772	1396.74	4865.705
603	Cast in-situ R/C retaining walls	M3	7,326	542.26	3185.76
	Precast R/C foundation blocks for terramesh	M3	3,562	0	0
607	Precast “Lego” type concrete blocks	M3	11,915	1692	4382
	Green terramesh system (4.0 x 3.0 x 0.76 m)	Each	4,322	0	0
	Terramesh wall elements (4.0 x 2.0 x 1.0 m)	Each	2,374	0	0

	Gabion boxes (2 x 1 x 1 m)	Each	7,239	264	1348

Progress of Work, LOT 2 (Akkord ICIC)

	UNIT	BOQ QUANTITIES	PERFORMED LAST PERIOD		PERFORMED THIS MONTH		PERFORMED UPTO DATE	
4.1 DESIGN WORKS								
Shop drawings km	SUM	100.00%	80%	80%	0%	0%	**80%**	**80%**
4.2 ROAD WORKS								
Earthworks								
Embankment works	km	25.62	0.00	0%	0.00	0%	**0%**	**0%**
Pavement								
Capping layer h=200mm	km	25.62	0.00	0%	0.00	0.0%	**0%**	**0%**
Base coursel h=200mm	km	25.62	0.00	0%	0.00	0.0%	**0%**	**0%**
Asphalt Binder course h=100mm	km	25.62	0.00	0%	0.00	0.0%	**0%**	**0%**
Asphalt Surface course h=40mm	km	25.62	0.00	0%	0.00	0.0%	**0%**	**0%**
4.3 DRAINAGE WORKS								
Pipe Culvert d=1.0 m(New)	m	871.00	36	4.1%		0.0%	**36.00**	**4%**
Pipe Culvert d=1.5 m(New)	m	402.0	75	22.1%		3.5%	**89.00**	**22%**
Box culverts d=3mx2m	m	84.0	13	15.5%		0.0%	**13.00**	**15%**
Box culverts d=2mx2m	m	37.0		0.0%		0.0%	**0.00**	**0%**

4.4 RETAINING AND GABION WALL

RC Wall	m	3,758	706	18%		1.0%	**706**	**19%**
Lego Block	m	614		0%		0.0%	**0**	**0%**
Gabion Wall	m	2,505		0%		0.0%	**0**	**0%**
Gr Teramesh	m	183		0%		0.0%	**0**	**0%**
Teramesh	m	393		0%		0.0%	**0**	**0%**
Soil Nailing	m	3,080		0%		0.0%	**0**	**0%**

4.5 BRIDGE WORKS

Bridge № 8	sum	100.0%	0%	0%	**0%**
Bridge № 9	sum	100.0%	0%	0%	**0%**
Bridge № 10	sum	100.0%	0%	0%	**0%**
Bridge № 11	sum	100.0%	0%	0%	**0%**
Bridge № 11a	sum	100.0%	0%	0%	**0%**
Bridge № 11b	sum	100.0%	0%	0%	**0%**
Bridge № 11b.1	sum	100.0%	0%	0%	**0%**
Bridge № 11c	sum	100.0%	0%	0%	**0%**
Bridge № 12	sum	100.0%	0%	0%	**0%**
Bridge № 13	sum	100.0%	0%	0%	**0%**
Bridge № 14	sum	100.0%	0%	0%	**0%**

Bridge № 15	sum	100.0%	21%	0%	**21%**
Bridge № 16	sum	100.0%	0%	0%	**0%**

Some photos from construction sites are provided in Annex 1.

2.4 Description of Any Changes to Project Design

Variation Orders LOT 1

No.	Subject	Issued Date	Amount (GEL)	Cumulative (Gel)
1	Demolition of Existing Bridge at Km 0+200	7th March 2019	565,256.31	565,256.31
2	Relocation of Gas Pipeline	2nd September 2019	1,270,415	1,835,671.31
3	Relocation of Power Transmission Line	25th September 2019	1,178,859	3,014,530.31
4	Relocation of Water Pipelines	7th April 2020	1,304,118.59	4,318,648.80
5	Provision and installation of Cast Iron Grates	4th May 2020	3,489,323.10	7,807,972.00

No Variation Orders for LOT 2

2.5 Description of Any Changes to Agreed Construction methods

26. During the reporting time period, the Contractor made several changes in the construction method, in particular the Contractor replaced Green Teramesh and teramesh wall (as it was in Original Design for Lot 1) with Lego Block walls (for more details please see **Annex-5**).

3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

28. The Supervision Consultant will supervise and monitor the project construction process. The SC includes Environment Specialist (National) as part of their team to oversee the overall implementation of environmental management plan (EMP)/SEMP, environmental monitoring, and compliance to the environmental requirements of ADB. SC Environmental Specialist will prepare quarterly environmental monitoring reports required by ADB, monitor the environmental compliance of the Construction Contractor.

29. SEMP for LOT 2 has been approved on 08.06.2020. Parametric measurements of air, noise and water quality have not been carried out because of restrictions associated with COVID 19 pandemic. HSE monitoring inspection have been carried out on 04.06.2020, relevant Non-Compliance Notes have been sent to contractor on 11.06.2020.

The vibration surveys were carried out on 25-27.06.2020 by SC, based on the concern of the owner of the commercial space as a result of the vibration caused by the heavy machinery moving on the road (relevant report will be submitted as a separate document with this Bi-annual report).It can be concluded that the data, which were acquired during these 3 day surveys show cases that the vibration on road, which caused by heavy machinery movement, is considerably lower than permitted level and does not cause damages to the building. Abovementioned study has been carried out based of local resident's (hotel owner) complain.

3.2 Site Audits

31. Due to winter season and following COVID-19 pandemic, construction activities have been suspended or slowly progressed during February - May 2020. One site HSE inspections have been undertaken during reporting period (04.06.2020) by Contractors Environmental Manager and Construction Consultant's Staff (relevant HSE Monitoring Report prepared and filed, see **Annex 3**). The summary of site inspections is provided in **Table 3** below**.**

Table 3: Summary of site audits (Lot1/Lot2)

Date of visit	Name of Company	Auditors name	Purpose of audit	Summary of any significant findings	Cross reference to Audit report
04.06.2020	BSG	Shalva Bosikashvili	Compliance with HSE requirements, SEMP	1. Spoil huge stockpiles (mixed concrete debris, big stones, soil) were fixed at the immediate vicinity of the river (high	Relevant Non-compliance notes submitted

				probability of the river contamination with sediment) KM 5+400; KM 9; KM 15; KM 16. 2. Concrete debris/big rocks were fixed alongside the road; 3. Violation of Safety standards (Unsafe wiring, workers without helmets, rebar without capping, heavy equipment operation without flagman, lack of safety warning signs); 4. Damaged trees identified at KM 14.	

32. Non-compliance corrective action plan for listed non-compliances has been submitted on July 13 and partly implemented.

3.3 Issues Tracking (Based on Non-Conformance Notices)

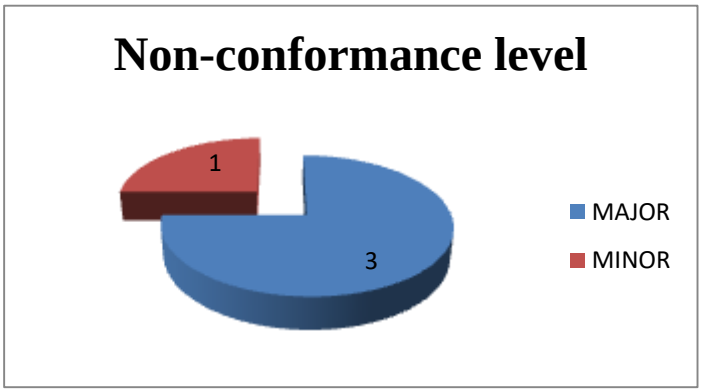
33. During HSE site inspections some non-conformances were detected. 4 Non-Conformances detected for LOT1 BSG they were described in Non-Compliance Notes (see Annex 2) relevant correction action plan has not been prepared so far

Table 4. Summary of Issues Tracking Activity for Current Period

Summary Table	
Total Number of Issues for Project	36
Number of Open Issues	04
Number of Closed Issues	0
Percentage Closed	60.7
Issues Opened This Reporting Period	4

Issues Closed This Reporting Period	0

Figure 2. Summary of Issues by Non-Conformance



3.4 Trends

34. Contractor's HSE performance under Lot 1 generally satisfactory, relevant trainings are provided to the site staff, required documents and reports submitted, waste segregation and disposal procedure acceptable. Grievance redress system is established, the grievance boxes are located at the entrance of the Company Office in Kharagauli and entrance of the Camps (Kharagauli and Sagandzile).

35. For LOT 2 Akkord H&S performance improved, but significant improvements are required for the environmental safeguards implementation on site and for paperwork.

36. To identify trends in environmental issues information from previous Bi-Annual EMR July-December 2019) is used. The summary of the issues is provided in the table 5 below.

Table 5: Summary of identified trends in environmental issues

Semi-Annual EMR No	Total No of Issues	% issues Closed	% issues closed late
1 July 2018 – December 2018	2	100%	0%
2 January - June 2019	12	75%	25%
3. July 2019 – December 2019	12	67%	33%
4. January - June 2020	4	0%	0%

Note: First Bi-annual EMR has been submitted when actual construction activities were not commenced.

3.5 Unanticipated Environmental Impacts or Risks

37. So far unanticipated environmental impacts/risks are not identified.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

38. Environmental monitoring started immediately after the commencement of civil works.

39.According to the project EIA, periodic parametric mesurements of air, noise and water quality for both lots will be carried out by the constrution contractor according appropriate schedule. Locations of measurements will be defined by the method statement for particular area.

40. During the reporting period the construction contractors (Lot 1 and Lot 2) conducted monitoring of the following sites:

- Camp and construction sites,
- Installation of batching plant and crusher (relevant documentation prepared and submitted)
- Tree felling

41. Parametric measurements of air, noise and water quality have not been carried out because of COVID-19 pandemic.

42. Noise and air pollution standards defined by IFC/WHO 1999 are presented in the Table 6 and 7 below.

Table 6: Noise Level Guidelines

Noise	**dB National Regulations**		**dB WHO**	
Receptor	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00	Daytime 07:00- 22:00	Nighttime 22:00- 07:00
Residential; institutional; educational	55	45	55	45
Industrial; commercial	70	70	70	70

Air pollution standards by IFC/WHO 1999 are presented in the Table 10 below

Table 7: Air pollution Guidelines

Contaminants	IFC/WHO Guideline Value (Limit) mg/m^3))
1	2
Inorganic dust	(*IFC does not have a standard for “inorganic dust”. Instead IFC applies standards for PM2.5 and PM10).

	PM10 – 0,02/1 Year 0,05/24 Hour PM2,5-0,01/1 Year 0,025/24 Hour

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4.2 Trend

43. Contractor's HSE performance generally satisfactory, relevant trainings are provided to the site staff, required documents and reports submitted, waste segregation and disposal procedure established. Noise and vibration levels are permanently controlled at the sensitive locations.

44. So far all mitigation measures identified within the project are effective.

4.3 Summary of Monitoring Outcomes

45. Last parametric measurements have been carried out on 29.11.2019. Next parametric measurements will be performed on quarterly basis according to ADB guidelines. Monthly HSE inspections have been carried out to monitor HSE culture and performance at the construction sites. Frequently identified issues are: Unacceptable housekeeping, heavy equipment operation without banksman, outdoor power generators working without drip trays and sufficient fire extinguishers, huge spoil/waste stockpiles, HSE standards violation, trees damage.

46. SC and RD will monitor the improvements under the project and reflect findings in the next Bi-annual EMR as of July – December 2020 reporting period.

4.4 Material Resources Utilisation

47. BSG obtained licenses for gravel and sand extraction (N10000489; 10000490; 10000491-22.01.2019). Below table reflects production of inert material, cement and reinforcement.

Table 9: Production of Inert Material

#	*Description*	*Unit*	*Previous Quantity in Stock*	*Current Production*	*Current Quantity in Stock*	#
			(A)	*(B)*	*(D) = (A) + (B) - (C)*	
	Sand 0-5	m^3	500	800	800	500
	Gravel 5-10	m^3	2,500	1,500	1,500	2,500
	Gravel 10-16	m^3	-		-	-
	Gravel 10-18	m^3	2,700	2,200	1,500	3,400

	Gravel 10-20	m^3		150	-	150
	Gravel 16-32	m^3	-	-	-	-
	Sand-Gravel for Subbase	m^3	-	-	-	-
	Base 0-40	m^3	3,500	4,000	-	7,500
	Gravel 20-40	m^3	750	3,000	500	3,250
	Gravel 0-120	m^3	1,500	500	200	1,800
	Gabion & Terramesh Material 100-200	m^3	500	500	300	700
	Rocks 300-800 mm	m^3	500	1,000	-	1,500
	Rocks 500-1000 mm	m^3	-	-	-	-
	Sand - Gravel Mix for shoulders	m^3	-	-	-	-
	Lego Blocks	unit	2,500	300	991	1,809
	R/C foundation blocks for terramesh and green terramesh	unit	230	-	230	-
	Pre-Cast RC Pipe D=1000	m	800	-	-	800
	Pre-Cast RC Pipe D=1500	m	250	-	-	250
	Gabion Box 2x1x1	unit	2,500	-	1,700	800
	Gabion Box 1,5x1x1	Unit	-	-	-	-
	Terramesh Box 4x2x1	Unit				

			50	-	-	50
	Green Terramesh 4x3x0,76	Unit	-	-	-	-
#	***Description***	***Unit***	***Previous Quantity in Stock***	***Current Production***	***Current Quantity in Stock***	**#**
			(A)	***(B)***	***(D) = (A) + (B) - (C)***	
	Sand 0-5	m^3	100	3,882	3,074	100
	Gravel 5-10	m^3	2,000	798	1,496	2,000
	Gravel 10-16	m^3	-	-	-	-
	Gravel 10-18	m^3	3,500	-	3,500	3,500
	Gravel 10-20	m^3	500	2,993	3,076	500
	Gravel 16-32	m^3	-	-	-	-
	Sand-Gravel for Subbase	m^3	-	-	-	-
	Base 0-40	m^3	-	-	-	-
	Gravel 20-40	m^3	500	500	1,000	500
	Gravel 0-120	m^3	5,000	500	5,500	5,000
	Gabion & Terramesh Material 100-200	m^3	3,500	1,000	4,500	3,500
	Rocks 300-800 mm	m^3	1,500	500	2,000	1,500
	Rocks 500-1000 mm	m^3	-	-	-	-
	Sand - Gravel Mix for	m^3				

	shoulders		-	-	-	-
	Lego Blocks	unit	2,200	3,290	5,490	2,200
	R/C foundation blocks for terramesh and green terramesh	unit	-	230	230	-
	Pre-Cast RC Pipe D=1000	m	500	-	500	500
	Pre-Cast RC Pipe D=1500	m	200	-	200	200
	Gabion Box 2x1x1	unit	500	1,700	2,200	500
	Gabion Box 1,5x1x1	Unit	9	-	9	9
	Terramesh Box 4x2x1	Unit	-	240	240	-
	Green Terramesh 4x3x0,76	Unit	-	-	-	-

Table 10 - Production / Purchase and Delivery of Pre Fabrics and Plants

No.	Description	Unit	Quantity	Country / Place of Origin	Status	Delivery Time
1	Cement	ton	500			
2	Reinforcement	ton	500			

4.4.1 Current Period

48. Permits for water use and water discharge obtained for the camp sites (LOT1 and LOT2). For current reporting time period water, gas and electricity consumption is given below:

Table 11

LOT1

Water	M^3	457
Gas	M^3	3457
Electricity	KWT/Hour	167890

LOT2

Water	M^3	350
Gas	M^3	13567
Electricity	KWT/Hour	40354

4.5 Waste Management

49. Waste segregation and disposal procedure established. Appropriate waste containers for hazardous and domestic waste are placed and labeled (see Annex 1). The warehouse of hazardous waste is arranged on Kharagauli camp site for Lot 1. Training of the personal was conducted. The agreement was signed with the local cleaning service and domestic waste is removed twice a week, also for hazardous waste disposal agreement has been concluded with relevant licensed company,"Ecomedi''. For LOT2 non-hazardous waste disposed by Khashuri municipal cleaning service, for the hazardous waste disposal contractor company is not selected yet. Warehouse for the hazardous waste (LOT 2) is not arranged so far.

4.5.1 Current Period

50. Insignificant amount of hazardous waste kept in warehouse at Kharagauli camp (special rooms with concrete floor and locked metal gate with warning) "Ecomedy" (licensed company) removed and disposed hazardous waste from the construction sites.. Domestic waste from the sites removed and disposed by the licensed contractor (Kharagauli Cleaning Service). During the reporting period spoil removal/disposal works were not carried out. Spoil dumping area agreed with local municipality (same area used by Chinese company constructing the railway). Small volume of the hazardous waste is kept under the shelter in the containers and finally will be deposed by the licensed contractor LOT2. Non-hazardous waste disposed by the Khashuri Municipal cleaning service. Domestic waste- 22.5 MT and hazardous waste 24kg (kept in hazardous waste warehouse) generated during the reporting period.- LOT 1. CC for LOT 2 has not provided any information regarding waste disposal. Actually starting from January 2020 construction activities on the LOT2 were suspended up to now.

4.6 Health and Safety

4.6.1 Community Health and Safety

51. BSG assigned H&S officer (Nick Jashiashvili) to oversee H&S performance at the construction sites and camps. During this reporting period no accidents have been identified and recorded in the H&S log book, some near misses were identified and recorded in the Non-compliance Notes and HSE Inspection reports (see relevant Annexes).

Kamran Akhmedov assigned as H&S officer for LOT 2 to oversee H&S performance at the construction sites and camp. During this reporting period no accidents have been identified and recorded in the H&S log book. Some near misses were identified and recorded in the Non-compliance Notes and HSE Inspection reports (see relevant Annexes).

4.6.2 Worker Safety and Health

52. During this reporting period no accidents have been recorded. Log books for HSE accidents prepared and kept at the camp site. HSE inspection carried out identified some H&S non-compliances, particularly- Heavy equipment working without banksman, PPE issues, rebar without capping, deep excavations and cuts without hard barriers, no flash lights at the hazardous places for nighttime warning.

53. All H&S procedures associated with COVID-19 pandemic and recommended by WHO and Georgian government are addressed and followed. Disinfection barriers and hand sprays have been placed at every office entrance, wearing of disinfection masks (masks purchased by CCs and distributed) is obligatory inside the buildings (Both Lots). All personnel including consultant engineer has been checking temperature at the beginning of work every morning. Such measures will be carried out until restrictions associated with COVID-19 are repealed.

4.6.3 Training

54. HSE induction training was provided to the contractor's relevant staff. Daily tool boxes were carried out. Relevant training given to the personnel involved in the hazardous waste handling. Specific training regarding flora and fauna protection have been provided to the site staff. (Please see **Annex 3**).

4.7 Grievance Redress Mechanism

55. Nine complaints were submitted and recorded in the log book during the reporting period under LOT1. Out of 9 complaints 6 complaints have been closed and 3 are still open. Statuses of complaints are given in table of **Annex 4**.

5. FUNCTIONING OF THE SEMP

5.1 SEMP Review

56. SEMP for LOT 1 has been submitted in October 2018, reviewed by Consultant Engineer, RD, ADB and with appropriate comments sent back, for the revision. During preparation of SEMP existing EMP was used as a baseline document by CC.

57. SEMP for LOT 1, was prepared by the Contractor BSG, endorsed by SC and approved by RD and reviewed/commented by the RETA International Environmental Consultant of ADB under RETA 8663 - Ms. Keti Dgebuadze. SEMP for LOT 2 was approved on 19.06.2020

58. At this stage, presented mitigation measures are effective and there is no need for corrections or alternatives. So, no changes needed in the mitigation measures of the Environmental Management Plan at the moment.

59. SEMPs for both Lots will be updated according to ADB requirement and will include anti-COVID – 19 measures, this issue will be reflected in the next Semi-Annual EMR.

6. GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practice

60. During the reporting period, the Contractors BSG (LOT1) and AKKORD ICIC (LOT2) timely provided the following:

BSG:

- Prepare and submit Scoping Reports for the Crusher and Batching Plant. Developed the Specific Environmental Management Plan and submitted it to the engineer;
- Timely deliver Monitoring Reports, and other documents
- Timely deliver the Health Safety Management Plan to the Engineer;
- Conclud the Agreement on removing of domestic waste;
- Conclude the agreement with licensed company “Ecomedi” for hazardous waste disposal
- Provide Bio Toilets for the Construction Sites
- Provide safety equipment for the working personnel;
- Obtained technical regulations on water withdrawal permit from the Ministry of Environment Protection and Agriculture.
- Establish grievance redress system

AKKORD ICIC:

- Timely Submitted SEMP for LOT2
- H&S experienced officer Kamran Akhmedov has been assigned.

6.2 Opportunities for Improvement

61. Provide relevant site staff with housekeeping and pollution prevention trainings, also provide field staff with H&S trainings - Heavy Equipment Operation, PPE, Tripping & Slipping Hazards, Deep Excavation Safety, Fire Safety etc.

7. SUMMARY AND RECOMMENDATIONS

7.1 Summary

62. It should be highlighted that during the reporting time period the HSE performance of the Contractor was satisfactory. The actions of the Contractor didn't have any negative effect on biodiversity and no poaching actions were evident. No safety accident or near misses were identified. 7 grievances received from the local habitants and recorded in relevant log book.

63. During the reported period construction activities were implemented only on the LOT 1. Contractor (BSG) have intensified all activities to improve the progress of the works on sites. Individual and Joint on-site monitoring activities were conducted by Environmental Monitoring Specialist of Supervisor Consultant and RD on a regular basis.

64. Day-to-day monitoring of the construction sites were carried out by the environmental Specialists of Contractor, relevant monitoring reports were developed and sent to Supervision Consultant.

65. Environmental Monitoring Specialist of Pyunghwa Engineering Consultants Ltd, Yooshin Engineering Corporation and Roads Rehabilitation and Modernization Supervision Direction Ltd, Mr. Shalva Bosikashvili conducted monthly monitoring of project sites. He also developed Semi-Annual environmental monitoring reports based on the monthly reports submitted by Contractor and environmental site inspections and submit to RD.

66. The monitoring activities included monitoring of compliance of construction activities to the IEE/EMP and SEMP requirements for Rehabilitation of Dzirula – Kharagauli –Moliti – Pona – Chumateleti Secondary Road project.

67. Environmental Specialist of RD, Ms. Luiza Bubashvili performed monitoring of contractor's performance in accordance with the requirements of approved IEE/EMPs, SEMPs, and other environmental commitments of the contractor.

68. Mitigation measures in order to reduce major environmental impacts have been instructed to CCs during the monitoring visits as well.

69. In accordance with the EIA, and the accompanying Environmental Monitoring Plan (EMP), the Contractor is required to undertake parametric measurements and observations on air quality, surface water quality, noise and socio-cultural resources.

70. Necessary instructions have been given to the Contractors by RD and SC to follow the ADB requirements for the LOT1 and LOT2.

7.2 Recommendations

71. The following activities are planned for the next July – December 2020 reporting period:

- Quarterly parametric measurements of the air/water quality and noise/vibration should be scheduled and performed in time – Q3-Q4, 2020;
- Implementing Corrective Action Plan - Q3, 2020
- Undertake trainings for housekeeping improvement and pollution prevention - Q3-Q4, 2020;

- Undertake H&S Trainings: Heavy equipment working procedure, PPE issues, rebar capping, deep excavations and cuts hazard prevention, nighttime warning signs – Q3-Q4, 2020.
- Update SEMPs on anti-COVID measures – Q3, 220.

ANNEXES:

Annex 1: Site Photos

Bridge Construction KM 14 –Workers without helmets, damaged btrees

Spoil stokpile and heavy equipment working without flagman

Deep excavation without hard barrier, warning signs KM16

Concrete debris RHS and huge spoil stockpile LHS at the river KM 5+400

Annex 2 – Non-Compliances Notice

Non-Compliance Notice

Project: Construction Supervision of Rehabilitation of Dzirula – Kharagauli –Moliti – Pona – Chumateleti Secondary Road Section (50 Km) –Lot 1	**Non-compliance Notice** **Rehabilitation of Dzirula – Kharagauli –Moliti – Pona – Chumateleti Secondary Road Section (50 Km) –Lot 1 (Contractor-BSG)**
Contract No: SRIP/CS/QCBS-01	
Contractor: BSG	
Reference: **LOT 1 construction sites**	

This notice is to advice the prime Contractor, on the referenced Contract, of the following notice on health, safety and environmental measures to be implemented **urgently.**

GENERAL COMMENT FOR ALL SITES:

All construction materials and wastes should be properly segregated and stored adequately, Oil spills should be prevented, Oil spill response kits and drip trays should be placed at the appropriate locations, Housekeeping must be improved, H&S culture should be established and maintained.

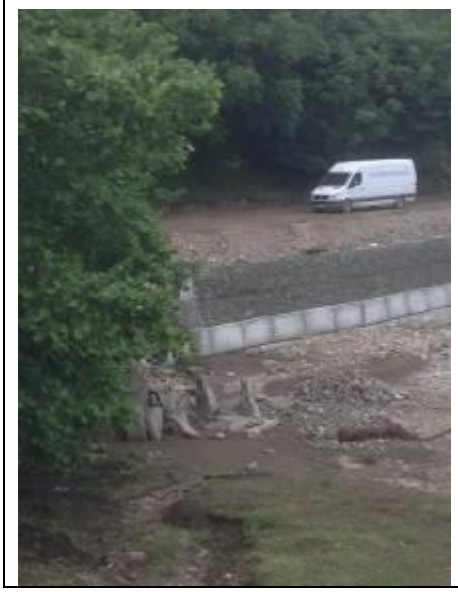
NON-COMPLIANCE at the Lot 1 construction sites

- Spoil huge stockpiles (mixed concrete debris, big stones, soil) at the immediate vicinity of river (high probability of the river contamination with sediment) KM 5+400; KM 9; KM 15; KM 16.
- Concrete debris/big rocks alongside the road
- Safety standards violation (Unsafe wiring, workers without helmets, rebar without capping, heavy equipment operation without flagman, lack of safety warning signs)
- Damaged trees (KM 14)

KM 9




KM 5+400





Concrete debris and washed out concrete

Mixed spoil, vegetation roots and concrete debris




Unsafe wiring, workers without helmets, heavy equipment operation without flagman, rebar without capping


Damaged trees

All these conditions have to be remedied within 10 days by the prime Contractor (BSG).	
Date of site visit: 04.06.2020	
Shalva Bosikashvili - Environmental specialist - Roads Rehabilitation and Modernization Supervision Direction Ltd,	
Luiza Bubashvili - Environmental Safeguard Consultant under ADB & EIB financed Projects (RD)	

Annex 3 – HSE Inspection Report

HSE INSPECTION REPORT

Date & Time: 04.06.2020 Location: Kharagauli

Subject of Inspection: HSE practice/Performance and culture on site

Supervisor: Hyun Koo PARK Contact Details:

People Interviewed:

No	Name	Position	Comment
1	Geno Akopashvili	Project Manager	
2	Nick Jashiashvili	Field HSE Officer	




Spoil huge stockpiles (mixed concrete debris, big stones, soil) at the immediate vicinity of river (high probability of the river contamination with sediment) KM 5+400; KM 9; KM 15; KM 16.

Washed out concrete and remains at the road

Workers without helmets and unsafe wiring

General Housekeeping

- Unacceptable at the construction sites.

H&S

- Information board and restriction signs are placed at the entrance.
- Entrance is controlled by security guard; enter for visitors are allowed after registration.
- Blinkers and hard barrier should be installed where needed
- PPE wearing at the construction site
- Electrical safety standard violation

Sanitation

- Toilet is clean.

Personal Protective Equipment (PPE)

- PPE in place. Some workers don’t wear PPE.

Vehicles & Equipment Safety

- Vehicles and heavy equipment in acceptable condition

Accident Reporting

- No accident was reported.

Medical Cover

- No medical cover on site.

Fire Safety

- Fire action board is placed on site.
- Fire extinguishers are placed on the action board

Emergency Response

- Emergency Response plan is elaborated and Master Point is defined and announced

Training

- All site personnel are trained; training record and hard copies are kept at the office;
- Spill/Contamination prevention and Vehicle/Heavy equipment inspection trainings should be carried out for the relevant contractor's staff.
- Training should be provided to the staff regarding Housekeeping at the construction site and include this issue in daily Toolbox talks.

Environment

- Only non hazardous waste wheelie bins are provided and placed where necessary.
- Drip trays should be provided and used at the vehicle/ heavy equipment maintenance area/ Re-fuelling points and generator
- No Spill Response Equipment on site; Spill kits should be placed at the vehicle and heavy equipment maintenance area, fuel and lubricant storage and refueling points.
- Waste storage and disposal should be improved.

- All vehicles and heavy equipment should be inspected on daily basis (use relevant checklists), in case of leakage finding, prohibit usage of the damaged Vehicles/Heavy equipment.
- General housekeeping is acceptable
- Power generator should be placed in the sufficient drip tray or concrete fuel/oil containment band should be arranged around.
- Area around the concrete washout pit is contaminated with concrete remains, relevant mitigation measures should be implemented ASAP to prevent nearby river contamination.

Social:

- No social issues were raised; all the activities are being preliminary agreed with local government representatives. Hard copies kept in office.

Cultural heritage:

- N/A

Other (specify):

Inspector (s):

Shalva Bosikashvili	Environmental Specialist
Name	Position

Nick Jashiashvili	HSE Manager
Name	Position

Annex 4 – Complaints

1	Kharagauli (Secondary RP)	Written	07.02.2020	Zestafoni Region Village Dzirula	Gelitashvili Lia T:555613634	Requests to strengthen the existing stone wall along her yard.	The rehabilitation of the existing stone wall is finilised.	Substantiated	Closed
2	Kharagauli (Secondary RP)	Written	12.02.2020	Kharagauli Settlement April 9 Street I lane	Khomasuridze Guliko T. 555221334	Additional gabion to be installed. Also access road shall be enough for traffic.	The experts of artificial structures from the Contractors' and Supervisors' side state, that arrangement of gabions is reasonable from technical viewpoint. The construction works on the entrance road are not completed, the Contractor is obliged to obey the design width of the entrance road.	Pending	Open

3	Kharagauli (Secondary RP)	Written	20.02.2020	Zestafoni Region VillageVashkariani	Zestafoni Region Village Vashkariani habitants Collective Letter Ivane Gvelesiani ID 18001009139 T. 595453409	The residents of village Vashkariani request to increase the height of gabion wall arranged along their access road. Also they state, that it is impossible to enter the access road from the bridge which is under the construction.	The Contractor has started arrangement of gabion wall. In regards to the connection of the bridge and the access road, from safety viewpoint it is necessary to prepare Traffic Organization Plan.	Pending	Open
4	Kharagauli (Secondary RP)	Written	09.03.2020	Zestafoni Region Village Dzirula	Gelashvili Besarioni ID:18001008362 T:599581960	He requests to rehabilitate the existing concrete retaining wall along this yard.	As long as existing concrete retaining wall is highly damaged, it became necessary to dismantle it and arrange new reinforced concrete wall.	Substantiated	Closed

5	Kharagauli (Secondary RP)	Written	10.03.2020	Zestafoni Region Village Dzirula	Gelashvili Darejani ID:18001020770 T:558700716	She requests to arrange concrete wall on the access path to the yard.	The Contractor has arranged concrete wall on the access path to the yard.	Substantiated	Closed
6	Kharagauli (Secondary RP)	Written	12.03.2020	Kharagauli Village Moliti	Lacabidze Spartaki ID:56001000690 T:596117058	He states, that large potholes developed on the road in village Moliti and it is impossible to drive on the road.	The Contractor fully restored the mentioned damaged road section.	Substantiated	Closed
7	Kharagauli (Secondary RP)	Written	19.03.2020	Zestafoni Region Village Dzirula	Eqseulidze Lia ID:18001027688 T:577319852	The landslide appeared at km 2+600 of the road, in village Dzirula. The information about this event was provided by Mrs. Lia.	The soil sliding from the steep slope has endangered residential house and ancillary buildings owned by Mrs. Lia. The buildings were inspected, cracks were marked and photo documented. Geological research was conducted, currently technical draft design is	Pending	Open

							under preparation. The buildings are inspected systematically. The Roads Department is informed about the results of observation.		
8	Kharagauli (Secondary RP)	Written	01.04.2020	Kharagauli Settlement King Solomon St. #43	Lursmanashvili Inga ID:56001001339	She requests to repair existing potholes on the carriageway in front of her house. She states that during traffic movement the vibration in house is felt, resulting in creation of cracks on the walls of the house.	The portholes mentioned in the letter are repaired.	Substantiated	Closed
9	Kharagauli (Secondary RP)	Written	03.06.2020	Kharagauli Village lashe	Lacabidze Nugzari ID:56001009408	Mr. Nugzari requests to arrange access road for construction of pedestrian bridge over the river Chkhermela in village Lashe	The mentioned access is arranged by the Contractor.	Substantiated	Closed

Annex - 5 Green Teramesh and Teramesh Wall (Original Design vs. Revised Design), Lot 1

No.	Original Design				Revised Design			
	Location (km)	Type	Length (m)	Amount (GEL)	Location (km)	Type	Length (m)	Amount (GEL)
GT1	0+006 - 0+072	G. Teramesh	72	451 363,97	0+006 - 0+072	Not fixed		
GT2	2+614 - 2+695	G. Teramesh	81	272 214,20	2+614 - 2+695	Under Design		
GT3	3+468 - 3+492	G. Teramesh	24	100 158,99	3+468 - 3+490	Lego Block	22	17 770,05
GT4	3+743 - 3+830	G. Teramesh	87	409 039,83	3+746 - 3+820	Lego Block + Gabion	74	278 889,25
GT5	5+730 - 5+784	G. Teramesh	54	227 573,76	5+730 - 5+784	Lego Block	54	70 187,82
GT6	13+592 - 13+664	G. Teramesh	72	483 113,00	13+592 - 13+664	Lego Block	72	47 253,40
GT7	14+136 - 14+190	G. Teramesh	54	350 733,34	14+136 - 14+190	Lego Block	54	35 453,58
GT8	14+550 - 14+574	G. Teramesh	24	172 941,16	14+550 - 14+574	Lego Block	24	15 745,17
GT9	22+812 - 23+133	G. Teramesh	321	1 857 055,34	22+812 - 23+133	Lego Block	321	591 326,12
	Sub total			**4 324 193.59**				**1 056 625,39**
T1	1+360 - 1+416, 1+498 - 1+540	Teramesh	98	336 766,46	1+360 - 1+540	Lego Block	98	136 504,40
T2	1+735 - 1+751	Teramesh	16	45 813,63	1+735 - 1+751	No need	0	0,00
T3	2+375 - 2+409	Teramesh	34	146 947,22	2+375 - 2+428	R/C wall + Gabion	53	160 192,59
T4	6+918 - 6+970	Teramesh	52	205 597,36	6+918 - 6+970	Lego Block	52	70 035,91

T5	7+028 - 7+070	Teramesh	42	153 191,22	7+028 - 7+070	Lego Block	42	36 371,38
T6	7+392 - 7+504	Teramesh	112	496 464,84	7+392 - 7+502	Lego Block	110	102 769,68
T7	7+523 - 7+583	Teramesh	60	241 567,19	7+508 - 7+584	Lego Block	76	54 961,12
T8	12+680 - 12+748	Teramesh	68	205 790,72	12+680 - 12+748	Lego Block	68	44 631,55
T9	13+345 - 13+393	Teramesh	48	132 954,11	13+345 - 13+393	Lego Block	48	80 251,10
	Sub total			**1,965,092.75**				**685,717.73**